

**PIEZOELECTRIC THIN-FILM ELEMENT, INK-JET HEAD  
USING THE SAME, AND METHOD FOR MANUFACTURE  
THEREOF**

**ABSTRACT OF THE DISCLOSURE**

A piezoelectric element with stable and excellent piezoelectric properties is made by: a step of forming a diaphragm 30 (31, 32) on a substrate 20 (S1); a step of forming a bottom electrode 33 on the diaphragm 30 (S2); a step of forming a first piezoelectric layer 43a on the bottom electrode 33 (S3); a step of patterning both the piezoelectric layer 43a and the bottom electrode 33 (S4); a step of forming a second piezoelectric layer on the piezoelectric layer 43a and on the diaphragm 30 to mature a piezoelectric film 43 (S5); and a step of forming a top electrode 44 on the piezoelectric film 43 (S6).